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Biyu Jade He

BIOGRAPHICAL INFORMATION:

Birth date / place:	December 2nd, 1985 / China
Work address:	10 Center Drive, Building 10, Room B1D104, Bethesda, MD 20892, U.S.A.
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EDUCATION:

2011 Aug	Methods in Computational Neuroscience course, Woods Hole, MA.
Ph.D., 2004 - 2009	Neurosciences program, Washington University in St. Louis, U.S.A.
2006 summer	Summer Institute in Cognitive Neuroscience, Dartmouth College. "Conscious and unconscious cognition and their interface with artificial devices."
B.S., 2000 - 2004	Tsinghua University, Beijing, China. Major: Biology. Minor: Neuroscience

RESEARCH AND PROFESSIONAL EXPERIENCES:

2010 Aug – present	Early stage investigator, National Insitutute of Neurological Disorders and Stroke (NINDS), NIH, Bethesda, U.S.A.
2010 Jan - Aug	Post-doctoral fellow, Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis., U.S.A.
2006 Aug - 2009 Nov	Ph.D. thesis work in Marcus Raichle's laboratory.
2005 Jul - 2006 Jul	Ph.D. thesis work in Maurizio Corbetta's laboratory.
2003 Feb - 2004 Jun	Research assistant in Yi Zhong 's laboratory at Tsinghua University. *Drosophila* behavior-genetics on the formation of long-term memory.

TEACHING EXPERIENCE:

2005	Teaching assistant to Washington University course "Principles of the Nervous System"

FELLOWSHIPS, AWARDS AND HONORS:

2010	Zukunftskolleg Fellowship, University of Konstanz, Germany (declined)
2009 & 2008	James L. O'Leary Prize finalist, Washington University
2008	Fellowship, Summer Institute in Cognitive Neuroscience, Lake Tahoe, California. (Could not attend due to visa background security check.)
2007	C-WIN graduate student travel award, Society for Neuroscience
2007	Fine Science Travel Fellowship, Neuroscience graduate program, Washington University
2006	Hope Center for Neurological Disorders Award, Washington University School of Medicine
2006	Fellowship, John Merck Fund Summer Insitute on the Biology of Developmental

	Disabilities, Princeton University. (Could not attend due to conflict of schedule)
2002, 2001 & 2000	Zhou Huiqi Scholarship for Academic Excellence (Highest award for academic achievement in the Department of Biology), Tsinghua University
2000	Scholarship for Excellent Freshman, Tsinghua University
2000	Highest score in National College Entrance Exams, China
1998	National Mathematics Olympiad, First prize in the all-China finals

PROFESSIONAL SERVICE:

2011 – 2012	Host Editor, Research Topic "Scale-free Dynamics and Critical Phenomena in Cortical Activity", Frontiers in Fractal Physiology.
2011 – present	Review Editor, Frontiers in Fractal Physiology.
2010	International Scientific Board member, World Conference on Psychology, Counselling and Guidance, Antalya, Turkey.

PEER-REVIEWED JOURNAL ARTICLES:

Biyu J He. Scale-free fMRI signals during rest and task. **Journal of Neuroscience**. 2011 Sep; 31(39):13786-13795.

Jennifer Rengachary, **Biyu J He**, Gordon Shulman, Maurizio Corbetta. A Behavioral Analysis of Spatial Neglect and Its Recovery after Stroke. **Frontiers in Human Neuroscience.** 2011 Apr; 5:29.

Biyu J. He, John M. Zempel, Abraham Z. Snyder and Marcus E. Raichle. The temporal structures and functional significance of scale-free brain activity. **Neuron**. 2010 May; 66(3): 353-369.
Preview in: Kayser and Ermentrout Neuron 2010; reviewed in Faculty 1000.

Biyu J. He and Marcus E. Raichle. The fMRI signal, slow cortical potential and consciousness. **Trends in Cognitive Sciences.** 2009 Jul; 13(7):302-9. *Cover illustration.*

Biyu J. He, Abraham Z. Snyder, John M. Zempel, Matthew D. Smyth, and Marcus E. Raichle. Electrophysiological correlates of the brain's intrinsic large-scale functional architecture. **Proc Natl Acad Sci U S A.** 2008 Oct; 105(41):16039-44.
Preview in: Balduzzi, Riedner and Tononi PNAS 2008; reviewed in Faculty 1000.

James M. Johnston, S. Neil Vaishnavi, Matthew D. Smyth, Dongyang Zhang, **Biyu J. He**, John M. Zempel, Joshua S. Shimony, Abraham Z. Snyder, and Marc E. Raichle. Loss of resting interhemispheric functional connectivity after complete section of the corpus callosum. **Journal of Neuroscience**. 2008 Jun; 28(25): 6453-8.

Biyu J. He, Gordon L. Shulman, Abraham Z. Snyder, and Maurizio Corbetta. The role of impaired neuronal communication in neurological disorders. **Current Opinion in Neurology.** 2007 Dec; 20(6):655-60.

Ayelet Sapir, Julie Kaplan, **Biyu J. He**, and Maurizio Corbetta. Neuroanatomical correlates of directional hypokinesia in patients with hemispatial neglect. **Journal of Neuroscience.** 2007 Apr; 27(15): 4045-4051.

Biyu J. He, Abraham Z. Snyder, Justin L. Vincent, Adrian Epstein, Gordon L. Shulman, and Maurizio Corbetta. Breakdown of functional connectivity in frontoparietal networks underlies behavioral deficits

in spatial neglect. **Neuron.** 2007 Mar; 53(6): 905-918.
Preview in: Gabrieli and Whitfield-Gabrieli Neuron 2007

BOOK CHAPTERS, REVIEWS AND COMMENTARIES:

Biyu J. He and Marcus E. Raichle. The slow cortical potential hypothesis on consciousness. In **New Horizons in the Neuroscience of Consciousness,** Elaine Perry, Daniel Collerton, Fiona LeBeau, and Heather Ashton (editors). John Benjamins Publishing Company. 2010.

Biyu J. He and Marcus E. Raichle. Response to Koch: Elaborations on the SCP hypothesis. **Trends in Cognitive Sciences.** 2009 Sep; 13(9):368-9.

Gaurav Patel, **Biyu J. He**, and Maurizio Corbetta. Attentional networks in the parietal cortex. In **Encyclopedia of Neuroscience**, Larry Squire (editor). Academic Press. 2008

INVITED TALKS:

To be given 2012 Apr	Plenary session "scale-free brain structure and dynamics" at Toward a Science of Consciousness conference, Tucson, AZ.
To be given 2011 Oct	Neuroscience Seminar Series, Maclean Hospital, Harvard University.
2011 Jun	Workshop "Scale-free Dynamics and Critical Phenomena in Cortical Activity" at Organization for Human Brain Mapping Annual Meeting, Quebec city, Canada.
2011 May	Symposium "Ongoing fluctuation of neural activity and its relationship to visual perception" at Vision Sciences Society Annual Meeting, Naples, FL.
2011 Feb	Clinical science research conference, Surgical Neurology Branch, NINDS, NIH. Title: The brain's intrinsic functional architecture viewed through fMRI and ECoG
2010 Jun	INSERM-CEA Cognitive Neuroimaging Unit, Neurospin, Paris, France. Title: Brain Waves: Oscillations or Fractals?
2010 Feb	Workshop on Future Research Directions of the Zukunftskolleg at the University of Konstanz, Germany. Title: A Neuroscientific study on Consciousness
2010 Jan	Department of Psychiatry, Ottovon-Guericke University of Magdeburg, Germany. Title: A quest for meaning in spontaneous brain activity.
2009 Jul	Complexity Workshop, Sage Center for the Study of the Mind, University of California, Santa Barbara, U.S.A. Title: A signal to noise battle - a struggle in a world discarded
2007 Mar	Workshop on Cognitive Neurobiology, Okinawa Institute of Science and Technology, Japan. (Poster Presentation) Title: Breakdown of functional connectivity in frontoparietal networks underlies behavioral deficits in spatial neglect

CONFERENCE PROCEEDINGS:

B.J. He. Scale-free properties of the functional magnetic resonance imaging (fMRI) signal. Society for Neuroscience meeting, 2011, Washington D.C.

A. L. Daitch, A.Z. Snyder, S. Astafiev, D. Bundy, Z. Freudenburg, C. Gaona, **B.J. He**, D. Pope, M. Sharma, G. L. Shulman, M.E. Raichle, E.C. Leuthardt, M. Corbetta. Temporal dynamics of stimulus-driven attention shifts as studied through the combined use of ECoG and fMRI. Society for Neuroscience meeting, 2010, San Diego.

B.J. He, J.M. Zempel, A.Z. Snyder, M.E.Raichle. The temporal structures and functional significance of scale-free brain activity. Organization for Human Brain Mapping annual meeting, 2010, Barcelona, Spain.

B.J. He, A. Z. Snyder, J.M. Zempel, M.D. Smyth, M.E. Raichle. Cross-frequency coupling in human electrocorticorgraphy. Society for Neuroscience meeting, 2008, Washington D.C.

B.J. He, A.Z. Snyder, J. Zempel, M.D. Smyth, M.E. Raichle. Electrophysiological correlates of the brain's intrinsic large-scale functional architecture. Organization for Human Brain Mapping annual meeting, 2008, Melbourne, Australia.

B.J. He, A.Z. Snyder, J. Zempel, M.D. Smyth, M.E. Raichle. Electrophysiological underpinnings of spontaneous fMRI correlation maps. Society for Neuroscience meeting, 2007, San Diego.

J.M. Johnston, S.N. Vaishnavi, **B.J. He**, M.D. Smyth, J.M. Zempel, J.S. Shimony, A.Z. Snyder, M.E. Raichle. Loss of resting interhemispheric functional connectivity after complete corpus callosotomy in a six year old child with intractable epilepsy. Society for Neuroscience meeting, 2007, San Diego.

P. Ramkumar, L. Parkkonen, **B.J. He**, M.E. Raichle, M. Hämäläinen, R. Hari. Identification of stimulus-related and intrinsic networks by spatial independent component analysis of MEG signals. Society for Neuroscience meeting, 2007, San Diego.

B.J. He, A.Z. Snyder, J.L. Vincent, G.L. Shulman, M.Corbetta. Breakdown of frontoparietal functional connectivity characterizes spatial neglect. Oral Presentation in Society for Neuroscience meeting, 2006, Atlanta.

AD HOC REVIEWER FOR SCIENTIFIC JOURNALS:

Neuron (1), PNAS (2), Neuroimage (3), Neuropsychologia (1), Psychophysiology (1), Frontiers in Systems Neuroscience (1), Neuroscience (1), PLoS Computational Biology (1), PLoS ONE (5), Frontiers in Fractal Physiology (1).

PROFESSIONAL MEMBERSHIPS:

Society for Neuroscience
Orgination for Human Brain Mapping
American Association for the Advancement of Science (AAAS)